U S. ENVIRONMENTAL PROTECTION AGENCY
COMMENTS ON
FINAL HISTORICAL INFORMATION SUMMARY AND
PRELIMINARY HEALTH RISK ASSESSMENT
OPERABLE UNIT 3

Page 4, Section 1.2, second paragraph: Delete the last sentence of this paragraph. EPA strongly disagrees that preparation of this report is outside the scope of RCRA and CERCLA guidance. The IAG clearly states in section I.A. of Attachment 2 (Statement of Work) which guidance documents are applicable to elements of work prepared pursuant to the IAG.

Page 6, Section 2.0, second paragraph: The statement in this paragraph that a system of diversion ditches and retention ponds prevents surface water from reaching any of the reservoirs is not accurate. Correspondence dated April 19, 1991 from Mr. Simonson of DOE to Mr. Shankland of EPA indicates DOE's intention to discharge water from C-2 holding pond to the Mower Reservoir. Modify this paragraph to reflect that surface drainage from RFP is occasionally discharged and explain how these discharges are regulated.

Page 8, first paragraph: The last sentence in this paragraph is not supported with any references and seems to be drawing a far reaching conclusion. Given the fact that the final draft of the Phase I RFI/RI Workplan for OU-5 on page 9-7 indicates detection of organic and metal contaminants in ponds C-1 and C-2 and in the Woman Creek Drainage, DOE can not state that no data exist for prospective RFP derived nonradioactive contaminants which could affect the reservoirs. Only after a thorough analysis of the existing data supplemented with any additional sampling to fill in data gaps, and consideration of chemical properties of contaminants which affect fate and transport, can a conclusion be drawn about nonradioactive contaminants. Modify this sentence to more accurately reflect existing data and indicate that additional analyses will be performed during the remedial investigation for OU-3.

Pages 9 and 10, last sentence on page 9: Indicate (in numerical values) the results of the various hydraulic conductivity tests which are referenced in this paragraph.

Page 12, Section 2.1.3, Environmental Investigations· EPA's previous comments on the draft Historical Information... Report indicated that qualifying statements such as "low" need to be supported by data The third sentence of this paragraph states that low levels of radionuclides were discharged to the A-series ponds. Provide a range of radioactivity levels of the discharges which would support the that these discharges contained "low levels".

Page 14, first paragraph: Delete the phrase, "suggesting that the measured concentrations represented background levels" from the last sentence of this paragraph. The referenced report makes no conclusion about comparison of the levels of Cesium-137, Strontium-89 and 90, Beryllium, and Potassium detected in Standley Lake and great Western Reservoir and background levels. Therefore it is inappropriate to draw such a conclusion in this report.

Page 16, first paragraph: As indicated in EPA's comments on the draft report, it is inappropriate to compare sediment data to the soil activity screening level adopted by CDH. In this case, the samples were not collected in accordance with the CDH specified sampling protocol. Modify the sentence to reflect the sampling results only.

Page 20, last sentence: Specify the surface water controls mentioned in this sentence.

Pages 36 and 37, Section 3.0, Conceptual Model of Contaminant Fate and Mobility: There are several problems with the conceptual model as presented in the final report. EPA recommends that DOE resubmit a corrected conceptual model. The main problems are summarized below:

a. The discussion on page 36 refers to plutonium contaminated reservoir sediments as the current source of contamination of the reservoirs. However, Figure 3-1 indicates that the sediments are transport media. The inconsistency causes confusion. Also, the entire conceptual model discussion ignores the possibility of contaminants other than plutonium without sufficient support.

b. The consideration of a treatment plant in a site conceptual model is completely inappropriate in an analysis of a no-action alternative. The drinking water withdrawal pathway should be deleted.

c Correct Table 3.1 to reflect that there is no secondary release mechanism from the fugitive dust to air to inhalation exposure pathway and the wind stripping of water to air to inhalation pathway. The inhalation pathway is a direct exposure pathway

d The dermal contact exposure route should be examined because the possibility of non-radioactive contamination of the reservoir sediments has not been ruled out.

e Referring to Figure 3-1, fugitive dust being generated directly from surface water needs to be explained. The figure should be modified to reflect deposition from surface water to

sediments and then fugitive dust generation. There must be an arrow from the deposition secondary release mechanism block for this to make sense.

f. There is no arrow from the biodegradation secondary release block. Explain how biodegradation affects the conceptual model.

g. The possibility of bioaccumulation needs to be indicated in Figure 3-1, Table 3.1, and the discussion. The possibility of nonradioactive contamination of the sediments has not been ruled out. Some of the metals already detected in the Woman Creek drainage waters are known to bioconcentrate and bioaccumulate.

Page 39, Section 3.1.1: The statement that the only known contaminants from the RFP above background levels in these reservoirs are plutonium and americium is misleading and inconsistent with the conclusions in Appendix A. Appendix A concludes all chemicals of potential concern at the site may not be identified. Also, in other sections of the report it is recognized that tritium contamination of the reservoir sediments has not been studied. The statement in Section 3.1.1 needs to be qualified to better reflect the uncertainty about the contaminants present at OU-3 and further discussions of potential exposure pathways need to take into account the possible presence of other contaminants. EPA has previously commented on this issue in the draft report.

Page 40, second paragraph: Provide information about how the "typical" temperature, pH, and Eh ranges of environmental concern compare with RFP conditions. What are "typical" values for these parameters?

Page 42, Section 3.2.3, Plutonium Fate and Mobility in Groundwater: Include specific information about the ground water monitoring along the eastern boundary of RFP. Such information should include the frequency of monitoring, the specific analytes, and the various screened intervals. Without this specific information, the emphatic statements about the lack of mobility of plutonium are not supported.

Page 43, Section 3.2.4, Plutonium Fate and Mobility in Water Treatment Plants: Delete this entire section. It is not appropriate in a no action risk assessment.

Page 46, Fourth and Fifth Bullets: Replace these two bullets with one which states, "Comparison of predicted intake rates with acceptable levels of exposure based on regulatory and toxicological information. The comparison of concentrations present with ARARs is a step of the RI/FS process, however it falls outside the scope of a risk assessment.

Page 47, Second Paragraph: Correct the reference in this paragraph to read 40 CFR Section 300(e)(2)(i)(A)(2).

Page 48, Third Paragraph: The first sentence in this paragraph is misleading. Please see EPA's comment on this same issue on page 39. At a minimum, DOE must indicate that a lack of consideration of other contaminants of concern in the qualitative risk assessment may result in an underestimation of risk.

Page 55, First Paragraph: The discussion on unit risk estimates is incorrect. Unit risk estimates are calculated by multiplying the slope factor by the inhalation rate or ingestion rate and the duration of the exposure in days. Please refer to the EPA Health Effects Assessment Summary Tables (HEAST).

Page 56, Section 4.3.5, Summary: The statement about x-rays and gamma rays (third sentence) must be supported by inclusion of the unit risk estimate values for external exposure which are listed in the HEAST. Also, the last sentence in this paragraph must include direct ingestion of contaminated soil along with ingestion of contaminated foodstuffs.

Page 57, First Paragraph: Include in the discussion of important properties of plutonium literature values for K_{ow}, K_d, water solubility, and organic solvent solubility.

Page 59, Section 4.5.1: There is insufficient evidence presented to justify ruling out consideration of ingestion of water suspended plutonium, ingestion of aquatic species, and direct ingestion of plutonium contaminated soils resulting from exposed sediments. These pathways must be discussed in this section particularly because the discussion on page 78 states that boating, fishing, swimming, hiking and biking occur in and around the Standley Lake Reservoir.

Page 62, Section 4.5.1.1: Delete showering/bathing from the list of potential secondary release mechanisms. Showering/bathing is an activity which may result in an exposure. It is not a release mechanism.

Page 63, Third Paragraph: EPA agrees that inhalation and ingestion of plutonium particles from re-entrained sediments is the most probable means of human exposure adjacent to Sites 200-202. However, Figure 4-1 does not include the ingestion pathway and the discussions contained in Section 4.8 regarding potential exposure to each reservoir completely ignore soil ingestion. Given the current land use of the Standley Lake Reservoir, the ingestion pathway must be addressed

Page 66, Second Paragraph: Provide a reference for this paragraph. The particle size limitations described are different

from those found in the EPA document, "Transuranic Elements, Volume 1", on page 5.8.

Page 67, Item 5: EPA previously commented that the prediction of a crusty plate-like surface as a result of reservoir water levels being lowered is not consistent with existing video tapes of high winds sweeping clouds of dust from exposed near-shore sediments at Standley Lake.

Page 72, First Paragraph: Include the value for gastrointestinal absorption factor for plutonium which is listed in the HEAST.

Page 77, First Paragraph: The last sentence in this paragraph indicates that DOE considered surface water, groundwater, and tap water as potential release mechanisms for plutonium transport. These are not release mechanisms but rather, media which could be considered as sources or transport media. Also, in this paragraph is a discussion of monitoring wells in the buffer zone which refers to background levels of plutonium. A discussion of what DOE considers to be "background levels" must be presented. DOE should present what other contaminants are analyzed for and what the results of these analyses are.

Page 78, Section 4.8.1.3: The statement, "Although it is possible that these sediments could be the source of fugitive dust, it is not a release mechanism for plutonium transport in the environment" is contradictory. The fact that it is possible that fugitive dust can be generated from exposed sediments means that resuspension is a potential release mechanism and inhalation and ingestion of suspended particles must be considered.

Appendix C, Page C-5: Ingestion of plutonium in soil as exposed sediments and inhalation of resuspended soil-sediment must also be considered in the residential scenario.